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AN INTERACTIVE DRIVER FOR COMPUTER PLOT PROGRAMS - DISSPLA

W.S. Bowman
Extractive Metallurgy Laboratory

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AN INTERACTIVE DRIVER FOR COMPUTER PLOT PROGRAMS - DISSPLT

by

W.S. Bowman*

SUMMARY

This report describes an interactive computer program which prepares the control statements and data file for running DISSPLA plots in batch mode.

RÉSUMÉ

Dans le présent rapport, on décrit un programme interactif d'ordinateur qui prépare les ordres de contrôle et fichiers de données permettant d'exécuter les tracés DISSPLA en traitement séquentiel.

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* Technologist, Physical Chemistry Section, Extractive Metallurgy Laboratory, Mineral Sciences Laboratories, CANMET, Energy, Mines and Resources Canada, Ottawa, Ontario, Canada. K1A 0G1

INTRODUCTION

The great advantage of the Computer Science Centre's plotting software package DISSPLA* is that it produces report-quality graphs. A major drawback is that, with the current configuration of CSC's computer, this package can not be run interactively due to the high memory requirements.

This report describes an interactive driver, a pre-processor, which constructs the necessary control statements and data file interactively. This program is executed as part of a Cyber Control Language Procedure (CCL Proc) which also submits the file created to the batch input queue for processing.

Most of the plot programs available with this Proc have been described previously[1]. They include graphs with linear axes, semi-log and log-log graphs. Several graphs of the same type can be made during the same session. Each graph can have several lines (or sets of data) and each one will be represented by different symbols. For plots on linear axes, the user can select straight line fitting, multiple regression curve fitting or no fitting (just the points plotted).

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* DISSPLA is a proprietary product of ISSCO, San Diego, California.

USING DISSPLT

The Proc DISSPLT resides in a library DRAFTLIB along with the ineractive program itself (PLTPREP) and all other needed programs and subroutines. The user need only attach the library and enter "begin, dissplt". Specifically,

```
attach, libl, draftlib, id = wsb, mr=1
library, libl
begin, dissplt
```

The rest of the input is all prompted by the program. The following is an actual example. Small letters show input by the user and large letters are output from DISSPLT or the computer system. In this example there is only 1 plot containing 1 line. The data points are read from a floppy disk unit (note %to and OK..)

EXAMPLE

```
attach,lib1,draftlib,id=wso,mr=1
 AT CY= 002 SN=PUBLIC2
COMMAND- library,lib1
COMMAND- begin,dissp.t

INTERACTIVE DRIVER FOR DISSPLA PLOTS


ENTER USER NAME -ie3xx

[redacted] ENTER ACCOUNT NUMBER

ENTER NAME AND DELIVERY ADDRESS
  MAXIMUM 50 CHARS) -bowman stop 10

CHOOSE ONE OF THE FOLLOWING:

  1. BOTH X AND Y-AXES LINEAR
  2. X-AXIS LOG AND Y-AXIS LINEAR
  3. X-AXIS LINEAR AND Y-AXIS LOG
  4. BOTH AXES LOG

ENTER 1,2,3, OR 4 -1

CHOOSE ONE OF THE FOLLOWING:
  1. NO CURVE FITTING
  2. STRAIGHT LINE FITTING
  3. MULTIPLE REGRESSION FITTING

ENTER 1,2, OR 3 -3

ENTER CAPTION FOR X-AXIS  - WARNING! DO NOT START WITH A NUMERIC OR PERIOD!
  (MAXIMUM 30 CHARS) -fraction reacted, r

ENTER THE LENGTH OF THE X-AXIS IN INCHES -6

ENTER STARTING VALUE FOR X-AXIS -0


ENTER END VALUE FOR X-AXIS -1

ENTER CAPTION FOR Y-AXIS
  (MAXIMUM 30 CHARS) -time, min.

ENTER THE LENGTH OF THE Y-AXIS IN INCHES -6

ENTER THE STARTING VALUE FOR THE Y-AXIS -0

ENTER THE END VALUE FOR THE Y-AXIS -140

ENTER X,Y PAIRS FOR LINE 1 ONE PAIR AT A TIME

  AFTER THE LAST PAIR, ENTER '%EOF'
```

Example (cont'd)

```
%to
.0477      10.
.1309      15.
.2019      20.
.2660      25.
.3267      30.
.3785      35.
.4297      40.
.4774      45.
.5231      50.
.5633      55.
.5995      60.
.6349      65.
.6677      70.
.6963      75.
.7250      80.
.7502      85.
.7761      90.
.7972      95.
.8150      100.
.8320      105.
.8450      110.
.8566      115.
.8675      120.
%eof
OK..

ARE THERE MORE LINES FOR THIS PLOT? (ENTER 'Y' OR 'N') -n

ARE THERE MORE PLOTS OF THE SAME TYPE? (ENTER 'Y' OR 'N') -n

A PLOT JOB HAS BEEN SUBMITTED TO THE BATCH INPUT QUEUE

A COPY OF THIS JOB IS ALSO STORED ON PERMANENT FILE FOR 5 DAYS
          PF=PLOTJOB
          ID=WSB

THE PRINT-OUT WILL COME BACK HERE AS A REMOTE OUTPUT FILE

EXAMINE THE PRINT-OUT TO SEE IF A PLOT IS EXPECTED

COMMAND-
```

As noted at the end of the example, after the job runs in batch mode, the print-out will be returned to the timesharing user ID as a remote output file. This file must be batched to local. It could then be copied to a printer using COPYCF. Or it could be examined using the PAGE utility and then discarded or batched to a batch terminal printer or to central site. Whether the print-out is recovered or not, a plot will be produced on the 1051 Calcomp plotter at the Computer Science Centre (if the job ran without errors), and sent to the user at the drop point or address given. The recovered print-out for the example job is given in Figure 1 and the resultant plot is shown in Figure 2.

Figure 1. Example print-out

```
status,ie3xx
OUTPUT   IE3XXGO DA PR=2771
   EXEC  IE3XXHW  T=000100
COMMAND- saten,ie3xx=0.,local
COMMAND- copycf,ie3xx=0
```

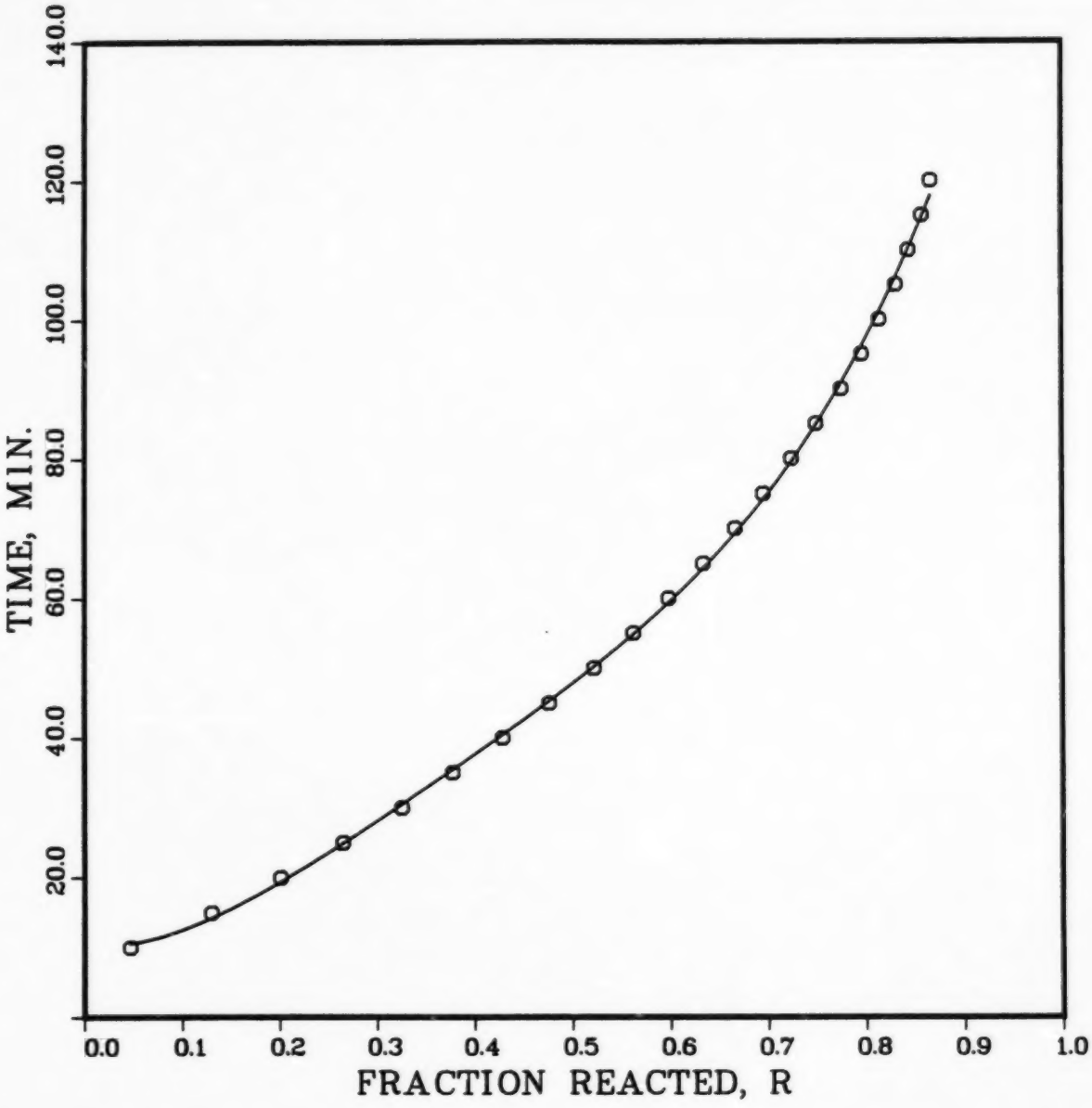
```
DATA FOR PLOT NO.  1
--------------------

X-AXIS: FRACTION REACTED, %          LENGTH IN INCHES = 8.0   RANGE =    0.0000 TO    1.0000
Y-AXIS: TIME, MIN.S                  LENGTH IN INCHES = 8.0   RANGE =    0.0000 TO  140.0000

LINE NO.  1              X              Y
----------              ---            ---
 23 POINTS              .0477         10.0000
                        .1309         15.0000
                        .2019         20.0000
                        .2660         25.0000
                        .3267         30.0000
                        .3785         35.0000
                        .4297         40.0000
                        .4774         45.0000
                        .5231         50.0000
                        .5633         55.0000
                        .5995         60.0000
                        .6349         65.0000
                        .6677         70.0000
                        .6963         75.0000
                        .7250         80.0000
                        .7502         85.0000
                        .7751         90.0000
                        .7972         95.0000
                        .8150        100.0000
                        .8320        105.0000
                        .8450        110.0000
                        .8586        115.0000
                        .8675        120.0000

SINCE THERE ARE NO FATAL ERRORS,
A PLOT IS EXPECTED

SEE DAYFILE FOR PLOT IDENTIFIER
```

```
**********  PLOT STATISTICS  **********

X-EXTENT=    10   Y-EXTENT=    11   (IN INCHES)
ESTIMATED PLOT TIME=   1.1 MINUTES
DSPACE USED=     15
APPROXIMATE PEN MOTION(INCHES)=     246.3
APPROXIMATE NO. OF VECTORS=      2351

PLOT WITH IDENTIFIER: IE3XXFF24 FROM JOB: IE3XXN8    AT 24/05/83  15.17.18.


END OF DISSPLA 8.2 --     2349 VECTORS GENERATED IN     1 PLOT FRAMES.
-ISSCO-  4186 SORRENTO VALLEY BLVD.,SAN DIEGO CALIF. 92121

DISSPLA IS A CONFIDENTIAL PROPRIETARY PRODUCT OF ISSCO AND ITS USE
   IS SUBJECT TO A NONDISSEMINATION AND NONDISCLOSURE AGREEMENT.
```

```
  MFB  CSC CYBER 730 SN497 NOS/BE 1.4 L515 3103
15.13.50.IE3XXN8  FROM MFA/DA
15.13.50.IP  00000128 WORDS - FILE INPUT  , DC 04
15.13.50.IE3XX,CM150000,T100,P2.
15.13.52.SYSBULL(NOBUL)
15.13.52.ATTACH,LIB1,DRAFTLIB,ID=WSB,MR=1.
15.13.52.AT CY= 002 SN=PUBLIC2
15.13.53.ATTACH,LIB2,IMSLIB,MR=1.
15.13.53.AT CY= 020 SN=PUBLIC
15.13.53.LIBRARY,LIB1,LIB2.
15.13.53.BEGIN,DISSPLA,,CAL1051,NAME=$BOWMAN STOP
15.13.53. 10$,
15.13.56.AT CY= 173 SN=PUBLIC
15.13.58.TYPE=2,P1=NIB,S1=3,PAPER=11,P2=NIB,C2=BL
15.13.58.ACK,S2=4,8=DRAFT2A.
15.14.02.IFE,$0$,NE,$0$,LGO.
15.14.04.ENDIF,LGO.
15.14.04.CASE(CAL1051)
15.15.06.SKIP,PLOTTER.
15.15.06.ENDIF,PLOTTER.
15.15.09.BEGIN,GETIT,,NUPLOTL.
15.15.12.IFE,,NOT.FILE(NUPLOTL,AS),NOTAT.
15.15.13.ATTACH,NUPLOTL,NUPLOTL,ID=PUBLIC,MR=1.
15.15.14.AT CY= 020 SN=PUBLIC
15.15.14.ENDIF,NOTAT.
15.15.15.REVERT.
15.15.17.REMARK. START OF PARAMETER CHECKING
15.15.18.LDSET(LIB=NUPLOTL).
15.15.19.GETPAR,CCRDEF,MF.
15.15.38.     STOP    PARAMETER CHECKING COMPLETED
15.15.38.RETURN,PF.
15.15.41.IFE,$PF$,EQ.$PF$,UDS.
15.15.43.MOUNT,VSN=EMR124,SN=PLOTTER.
15.15.46.MOUNTED VSN=EMR124,SN=PLOTTER
15.15.46.REQUEST,PF,*PF,SN=PLOTTER.
15.15.47.ELSE,UDS.
15.15.49.ENDIF,UDS.
15.15.49.BEGIN,RUNDIS,,CALCMPL,,$DRAFT2A$,$$,
15.15.52.PUBLIC,$0$,MAP=OFF,RFL=$0$.
15.15.55.BEGIN,GETIT,,CALCMPL,,PUBLIC.
15.16.00.IFE,,NOT.FILE(CALCMPL,AS),NOTAT.
15.16.02.ATTACH,CALCMPL,CALCMPL,ID=PUBLIC,MR=1.
15.16.02.AT CY= 020 SN=PUBLIC
15.16.02.ENDIF,NOTAT.
15.16.05.REVERT.
15.16.07.BEGIN,GETIT,,DISSPLA,$,SN=PUBLIC$,PUBLIC
15.16.07.,
15.16.10.IFE,,NOT.FILE(DISSPLA,AS),NOTAT.
15.16.12.ATTACH,DISSPLA,DISSPLA,SN=PUBLIC,ID=PUBL
15.16.12.IC,MR=1.
15.16.12.AT CY= 020 SN=PUBLIC
15.16.12.ENDIF,NOTAT.
15.16.14.REVERT.
15.16.16.BEGIN,GETIT,,DISPLA2,$,SN=PUBLIC$,PUBLIC
15.16.16.,
15.16.18.IFE,,NOT.FILE(DISPLA2,AS),NOTAT.
15.16.20.ATTACH,DISPLA2,DISPLA2,SN=PUBLIC,ID=PUBL
15.16.20.IC,MR=1.
15.16.21.AT CY= 020 SN=PUBLIC
15.16.21.ENDIF,NOTAT.
15.16.22.REVERT.
15.16.25.MAP,OFF.
15.16.25.IFE,$0$,EQ.$0$,DOIT.
15.16.26.LDSET(PRESET=ZERO)
15.16.26.LDSET(LIB=CALCMPL/DISSPLA/DISPLA2)
15.16.26.DRAFT2A.
15.17.07.( PF       ASSIGNED TO EST 133)
15.17.16.RETURN     HEADER
15.17.19.REQUEST(HEADER,*G,OV)
15.17.19.( HEADER: ASSIGNED TO EST 100)
15.17.19.DP  00000128 WORDS - FILE IE3XXFF, DC 30    :PLT  PT
15.17.25.CT ID=IE3XXFF24 PFN=PF
15.17.26.CT CY= 001 SN=PLOTTER 0000001920 WORDS.
15.17.26.RETURN     PF
15.17.26.     END  DRAFT2A
15.17.26.ENDIF,NORFL.
15.17.26.ELSE,DOIT.
15.17.29.ENDIF,DOIT.
15.17.29.MAP,OFF.
15.17.29.RETURN,CCRDEF.
15.17.30.REVERT.
15.17.32.RETURN,MF,CCRDEF,PF,HEADER.
15.17.33.REVERT.
15.17.35.DP  00000384 WORDS - FILE OUTPUT , DC 40
15.17.35.MAX STEP FL 0300008 ,MAX JOB FL 1340008
15.17.35.CPA      11.645 SEC.  (       148 SEC.): $         .887
15.17.35.IO      220.067 SEC.  (      3348 SEC.): $        2.138
15.17.35.CM     9074.881 KWS.  (    215638 KWS.): $        2.520
15.17.35.SS (P2 RATE/TAUX)                 TOTAL: $        5.647
15.17.35.PP     306.489 SEC.      DATE 24/05/83
15.17.35.EJ  END OF JOB, DA
 EOI ENCOUNTERED AFTER COPY OF FILE
        0, RECORD  3
COMMAND-
```

Figure 1. (cont'd)

Figure 2. Example plot



At the end of the example, it is stated that a copy of the input job is stored as a permanent file for 5 days. If for any reason the plot job must be re-run, this file (PF=PLOTJOB, ID=WSB) could be attached and batched to the input queue. If necessary, changes could be made using TXTEDIT or off-line on a floppy diskette. A copy of the stored file is shown in Figure 3.

Figure 3. Stored input job

```
        attach,a,plotjob,id=ws8
 AT CY= 003 SN=PUBLIC2
COMMAND- copysbf,a
```

```
IE3XX,CM150000,T100,P2.
ACCOUNT,[redacted].
ATTACH,LIB1,DRAFTLIB,ID=WS8,MR=1.
ATTACH,LIB2,IMSLIB,MR=1.
LIBRARY,LIB1,LIB2.
BEGIN,DISSPLA,,CAL1051,NAME=$BOWMAN STOP 10$,
TYPE=2,P1=NIB,S1=3,PAPER=11,P2=NIB,C2=BLACK,S2=4,B=DRAFT2A.
FRACTION REACTED, R$
 0. 0. 1.
TIME, MIN.$
 0. 0. 140.
*
.0477 10.
.1309 15.
.2019 20.
.266 25.
.3267 30.
.3785 35.
.4297 40.
.4774 45.
.5231 50.
.5633 55.
.5995 60.
.6349 65.
.6677 70.
.6963 75.
.725 80.
.7502 85.
.7761 90.
.7972 95.
.815 100.
.832 105.
.845 110.
.8586 115.
.8675 120.
*

COMMAND-
```

REFERENCE

1. Bowman, W.S. "Operational procedure for computer drawn graphs"; Division Report MRP/MSL 81-133(TR); CANMET, Energy, Mines & Resources Canada;